

# The investment skill of ESG aware mutual funds

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# Contents

- 1 Overview
  - Motivations
  - Research questions
  - Institutional setting
- 2 Data and Empirical strategies
  - Data
- 3 Main findings
  - PRI R&A rating and fund performance
- 4 ESG-related skills
  - Settings
  - Results
  - Contributions

- Investigate financial returns to ESG integration by mutual fund families
  - ▷ ESG incorporation could come at the expense of financial returns: e.g., supply and demand imbalance, sin-stocks vs. green stocks (Hong and Kacperczyk, 2009)
  - ▷ ESG incorporation correlates with higher returns: Increase in attention towards sustainability, ESG rating uncertainty (Pástor, Stambaugh, and Taylor, 2021)

- Investigate financial returns to ESG integration by mutual fund families
  - ▷ ESG incorporation could come at the expense of financial returns: e.g., supply and demand imbalance, sin-stocks vs. green stocks (Hong and Kacperczyk, 2009)
  - ▷ ESG incorporation correlates with higher returns: Increase in attention towards sustainability, ESG rating uncertainty (Pástor, Stambaugh, and Taylor, 2021)
  
- Unclear *why & how* ESG integration associates with returns at the mutual fund level, rather than the stock level (Pedersen et al., 2021; Avramov et al., 2021)
  
- How to measure ESG integration at the fund-level

- Does voluntary ESG disclosure reveal ESG investment skill, i.e. ability to create positive  $\alpha$  while aligning to ESG practices?
  - ▷ PRI 'standardised' transparency report
  - ▷ Other institution-level ESG measure
  
- What ESG-related mechanisms, *if any*, explain fund performance?

- Principles for Responsible Investment (PRI)
  - ▷ Institutions that sign the PRI commit to including ESG factors into their investment decisions and ownership processes.
  
- Reporting and Assessment Score (R&A score)
  - ▷ PRI staff rates all the various *modules* of the reporting framework.
  - ▷ Depending on signatories' answers in the survey, signatories receive R&A score that can take values from "A" to "E"
  - ▷ From 2014, signatories receive their assessment reports in July of each year.

**Figure 1:** Example of Reporting & Assessment Scorecard



*Categorizing institutions into scoring bands based on the R&A scores, where highest scoring bands identify signatories with the best ESG integration.*

- The aggregate R&A rating score, denoted as  $\bar{R\&A}$ , is defined as the average score across all available modules.
- Mutual fund data: Open-end equity mutual funds from Morningstar from January 2014 to December 2019 (Ceccarelli et al., 2022).
- Fund holdings: FactSet Ownership
- Fund returns estimates: Morningstar returns, ESG data (scores + RepRisk incidents), Compustat Global FactSet stock returns...



1. Fund managers from families with a high degree of integration out-perform, as they are more likely to be ESG aware and thus able to identify profitable investment opportunities. On average, funds of  $A/A^+$  signatories outperform funds of non-signatory (baseline) by 4 bps per month.
  - Multiple financial return measures: gross returns, Morningstar benchmark-adjusted, CAPM Alpha, Alpha 3F (market, size, value), Alpha 4F (market, size, value, momentum), abnormal returns with ESG factor.
  - Control for signatory's size, time-varying fund-level chars, and Style  $\times$  Time FE.

## 1. R&amp;A Ratings and Fund Performance

|                                   | Gross return       | Mstar<br>categ-<br>adjusted return | Alpha 1F           | Alpha 3F          | Alpha 4F           |
|-----------------------------------|--------------------|------------------------------------|--------------------|-------------------|--------------------|
| $\emptyset R\&A_{t-1} \geq A$     | 0.041**<br>(2.27)  | 0.033**<br>(2.38)                  | 0.041**<br>(2.29)  | 0.041**<br>(2.35) | 0.056***<br>(3.39) |
| $\emptyset R\&A_{t-1} \in [B, A)$ | 0.041***<br>(2.96) | 0.036***<br>(4.07)                 | 0.040***<br>(2.69) | 0.030*<br>(1.97)  | 0.035**<br>(2.19)  |
| $\emptyset R\&A_{t-1} < B$        | 0.017<br>(0.90)    | 0.009<br>(0.99)                    | 0.019<br>(0.98)    | 0.015<br>(0.77)   | 0.018<br>(0.89)    |
| Control variables                 | Yes                | Yes                                | Yes                | Yes               | Yes                |
| Style x Time FE                   | Yes                | Yes                                | Yes                | Yes               | Yes                |
| N                                 | 828,647            | 828,647                            | 828,647            | 828,647           | 828,647            |
| Adj R2                            | 0.824              | 0.013                              | 0.368              | 0.343             | 0.346              |

2. The reason behind *the positive relationship between financial returns and ESG integration* is mutual fund managers being ESG aware as opposed to ESG motivated (Pedersen, Fitzgibbons, and Pomorski; 2021)
  - Our main effect is concentrated in the sample of conventional funds with highest R&A rating, rather than socially conscious funds.

## 2. ESG-aware vs. ESG-motivated

|                                   | Socially conscious funds |                   | Conventional funds |                    |
|-----------------------------------|--------------------------|-------------------|--------------------|--------------------|
|                                   | Alpha 4F<br>(1)          | Alpha 4F<br>(2)   | Alpha 4F<br>(3)    | Alpha 4F<br>(4)    |
| $\emptyset R\&A_{t-1} \geq A$     | 0.051*<br>(1.90)         | 0.004<br>(0.06)   | 0.072***<br>(3.13) | 0.129***<br>(2.76) |
| $\emptyset R\&A_{t-1} \in [B, A)$ | 0.010<br>(0.38)          | -0.038<br>(-0.65) | 0.052**<br>(2.19)  | 0.070*<br>(1.82)   |
| $\emptyset R\&A_{t-1} < B$        | 0.008<br>(0.35)          | -0.055<br>(-1.45) | 0.034<br>(1.04)    | 0.012<br>(0.40)    |
| Controls                          | Yes                      | Yes               | Yes                | Yes                |
| Time                              | Yes                      | Yes               | Yes                | Yes                |
| Family FE                         |                          | Yes               |                    | Yes                |
| N                                 | 103,316                  | 103,312           | 734,726            | 734,710            |
| Adj R2                            | 0.027                    | 0.031             | 0.019              | 0.024              |

- Active fundamental performance and ESG Disagreement
- Active fundamental performance and RepRisk incidents

$$\text{Index-based } AFP_{j,t} = \sum_{i=1}^{N_j} (w_{i,t}^j - w_{i,t}^{bj}) CAR^*_{i,t}$$

- Trading activities around ESG score methodology (Morningstar) change

3. To test for ESG-specific investment skill, we need to measure the Active Fundamental Performance (AFP) of mutual funds. Our findings suggest that mutual funds with a high degree of ESG integration exhibit investment skill.

$$\text{Index-based } AFP_{j,t} = \sum_{i=1}^{N_j} (w_{i,t}^j - w_{i,t}^{bj}) CAR_{i,t}$$

Table: Investment skill and ESG Disagreement

| Stock-level ESG Disagreement:                       | Top Quintile        |                     | Top Quartile        |                     | Top Tercile         |                     | Above Median        |                     |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|   | $\alpha_{t+1}^{4F}$ | $\alpha_{t+1}^{4F}$ | $\alpha_{t+1}^{4F}$ | $\alpha_{t+1}^{4F}$ | $\alpha_{t+1}^{4F}$ | $\alpha_{t+1}^{4F}$ | $\alpha_{t+1}^{4F}$ | $\alpha_{t+1}^{4F}$ |
|   | (1)                 | (2)                 | (3)                 | (4)                 | (5)                 | (6)                 | (7)                 | (8)                 |
| $\emptyset R\&A_{t-1} \geq A \times AFP_t^{Disag}$  | 0.148**<br>(2.36)   | 0.128**<br>(2.07)   | 0.134**<br>(2.10)   | 0.120*<br>(1.80)    | 0.145**<br>(2.49)   | 0.137**<br>(2.35)   | 0.069<br>(1.38)     | 0.064<br>(1.27)     |
| $\emptyset R\&A_{t-1} \geq A \times AFP_t^{Others}$ |                     | -0.023<br>(-0.54)   |                     | -0.030<br>(-0.63)   |                     | -0.056<br>(-1.08)   |                     | -0.056<br>(-0.81)   |
| $\emptyset R\&A_{t-1} \geq A$                       | 0.080**<br>(2.32)   | 0.078**<br>(2.31)   | 0.079**<br>(2.30)   | 0.077**<br>(2.29)   | 0.080**<br>(2.36)   | 0.078**<br>(2.33)   | 0.081**<br>(2.33)   | 0.079**<br>(2.34)   |
| $AFP_t^{Disag}$                                     | 0.455***<br>(9.14)  | 0.446***<br>(9.06)  | 0.473***<br>(10.50) | 0.462***<br>(10.46) | 0.497***<br>(12.77) | 0.486***<br>(12.70) | 0.484***<br>(15.70) | 0.475***<br>(14.92) |
| $AFP_t^{Others}$                                    |                     | 0.465***<br>(16.18) |                     | 0.460***<br>(16.33) |                     | 0.446***<br>(13.70) |                     | 0.443***<br>(11.90) |
| Controls  | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 |
| Categ x Time  | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 |
| N   | 126,509             | 126,509             | 126,509             | 126,509             | 126,509             | 126,509             | 126,509             | 126,509             |
| Adj R2  | 0.277               | 0.295               | 0.278               | 0.295               | 0.282               | 0.295               | 0.286               | 0.295               |

Table: Investment skill and ESG negative incidents

|   | $AFP_t^{RR}$<br>(1) | $\alpha_{t+1}^{4F}$<br>(2) | $\alpha_{t+1}^{4F}$<br>(3) | $\alpha_{t+1}^{4F}$<br>(4) |
|---|---------------------|----------------------------|----------------------------|----------------------------|
| $AFP_t^{RR}$  |                     | 0.471<br>(1.37)            | 0.547<br>(1.30)            | 0.532<br>(1.24)            |
| $\emptyset R \& A_{t-1} \geq A \times AFP_t^{RR}$     |                     |                            | 1.776*<br>(1.87)           | 1.861**<br>(2.02)          |
| $\emptyset R \& A_{t-1} \in [B, A) \times AFP_t^{RR}$ |                     |                            | -0.940<br>(-1.52)          | -0.869<br>(-1.43)          |
| $\emptyset R \& A_{t-1} < B \times AFP_t^{RR}$        |                     |                            | -0.608<br>(-0.77)          | -0.574<br>(-0.73)          |
| $\emptyset R \& A_{t-1} \geq A$                       | 0.000<br>(1.04)     |                            | 0.056***<br>(2.82)         | 0.050<br>(1.26)            |
| $\emptyset R \& A_{t-1} \in [B, A)$                   | 0.000<br>(0.19)     |                            | 0.025<br>(1.16)            | 0.001<br>(0.04)            |
| $\emptyset R \& A_{t-1} < B$                          | -0.000<br>(-0.73)   |                            | 0.001<br>(0.03)            | -0.044*<br>(-1.90)         |
| Controls  | Yes                 | Yes                        | Yes                        | Yes                        |
| Categ x Time  | Yes                 | Yes                        | Yes                        | Yes                        |
| Family FE   |                     |                            |                            | Yes                        |
| N   | 362,158             | 329,062                    | 329,062                    | 329,062                    |
| Adj R2  | 0.021               | 0.299                      | 0.299                      | 0.303                      |



- **Event:** The recalibration of Morningstar Sustainalytics' ESG rating methodology (September 2019), absent any change in firms' underlying ESG fundamentals.

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- **Hypothesis:** *Non-greenwashing* funds trade less around this rating change event that unaccompanied by any change in firm ESG fundamentals
- **Prediction:** *Non-greenwashing* funds with highest ESG-awareness (highest R&A Rating) outperform around the event

Table: Investment skill around ESG rating methodology change

|  |                    |
|--|--------------------|
| $\emptyset R\&A_{t-1} \geq A \times NGW_t$     | 0.135***<br>(3.00) |
| $\emptyset R\&A_{t-1} \in [B, A) \times NGW_t$ | 0.011<br>(0.18)    |
| $\emptyset R\&A_{t-1} < B \times NGW_t$        | 0.020<br>(0.31)    |
| $NGW_t$  | -0.075<br>(-1.55)  |
| $\emptyset R\&A_{t-1} \geq A$                  | 0.040<br>(0.97)    |
| $\emptyset R\&A_{t-1} \in [B, A)$              | 0.077<br>(0.70)    |
| $\emptyset R\&A_{t-1} < B$                     | 0.002<br>(0.06)    |
| Controls                                       | Yes                |
| Categ x Time                                   | Yes                |
| N  | 36,885             |
| Adj R2   | 0.051              |

## Summary of results

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- Fund managers from families with a high degree of integration out-perform, as they are more likely to be ESG aware and thus able to identify profitable investment opportunities.
- To test for ESG-specific investment skill, we measure the AFP of mutual funds. Our findings suggest that mutual funds with a high degree of ESG integration exhibit investment skill (ESG disagreement, unexpected ESG incidents).
- Exploit a quasi-natural experiment of ESG rating methodology change, we show that ESG-aware and non-greenwashing funds outperform.

## Contributions

- The studies on the financial implication of ESG incorporation by fund managers (Pedersen et al., 2021; Avramov et al., 2021)
- Investment practices of PRI signatories (Glossner, 2021; Liang and Renneboog, 2020; Ceccarelli et al., 2022)
- Propose a new measure of ESG-specific investment skill (Jiang and Zheng, 2018)



*Thank you!*